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INTERNATIONAL STANDARD ISO 3604

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Fitting for unplasticized polyvinyl chloride (PVC) pressure pipes with elastic sealing ring type joints — Pressure test for leakproofness under conditions of external hydraulic pressure

Raccords à bagues d'étanchéité élastiques pour canalisations avec pression en polychlorure de vinyle (PVC) non plastifié — Essai d'étanchéité sous conditions de pression hydraulique extérieure

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3604 was drawn up by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, and was circulated to the Member Bodies in December 1974.

It has been approved by the Member Bodies of the following countries :

Austria	Israel	South Africa, Rep. of
Belgium	Italy	Spain
Canada	Mexico	Sweden
Denmark	Netherlands	Switzerland
Finland	Norway	Turkey
France	New Zealand	U.S.A.
Germany	Poland	U.S.S.R.
Ireland	Romania	Yugoslavia

The Member Body of the following country expressed disapproval of the document on technical grounds :

United Kingdom

Printed in Switzerland

Fitting for unplasticized polyvinyl chloride (PVC) pressure pipes with elastic sealing ring type joints — Pressure test for leakproofness under conditions of external hydraulic pressure

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the method for testing the leakproofness of elastic sealing ring type joints between fittings and unplasticized polyvinyl chloride (PVC) pressure pipes when the external hydraulic pressure is greater than the pressure within the pipes.

2 PRINCIPLE

Checking of the leakproofness of an assembled joint full of air under atmospheric pressure when submitted to external hydraulic pressure greater than the atmospheric pressure within the pipe.

3 SPECIFICATION

The test shall be carried out at two levels of difference between the external and internal pressure, namely 0,01 and 0,08 MPa (0,1 and 0,8 bar).

The test temperature shall be 20 ± 2 °C.

The joint shall remain leakproof for at least 1 h at each test pressure, when the spigot and socket conform to the extreme limits of their respective tolerances (see clause 5).

4 APPARATUS

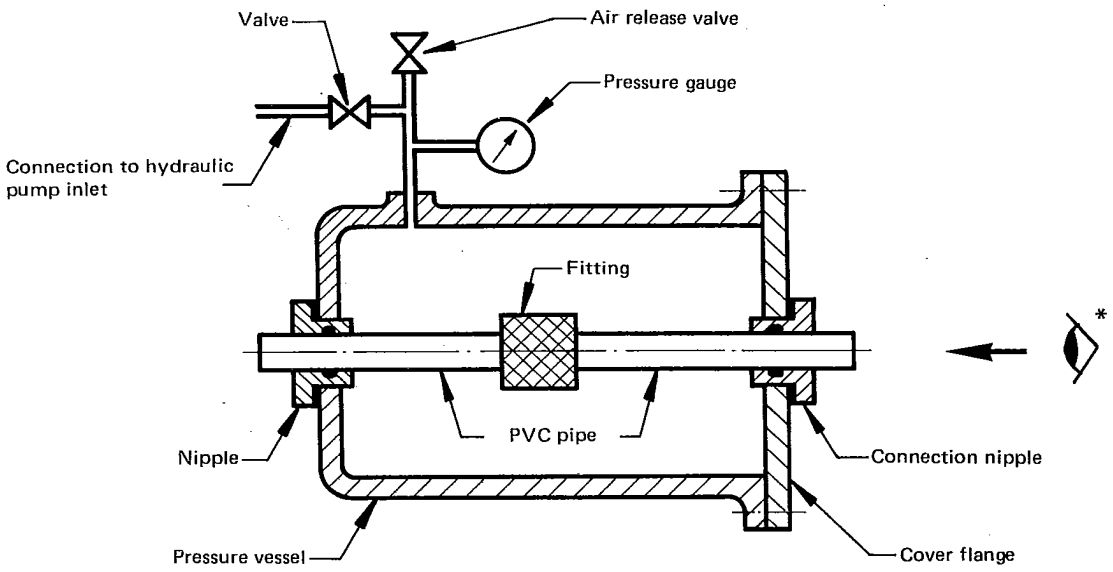
4.1 Enclosed tank, or **pressure vessel,** capable of being used at the appropriate test pressures and of receiving the test specimen. The inside of the test specimen shall be open to the atmosphere through the walls of the tank or vessel. The assembly shall be arranged so as to enable any leakage to be detected within the test specimen.

4.2 Device, connected to the tank or vessel (4.1) and capable of raising and maintaining a water pressure of

1) $0{,}01 \; ^{+\,0{,}005}_{0}$ MPa ($0{,}1 \; ^{+\,0{,}05}_{0}$ bar)

2) 0,08 ± 0,005 MPa (0,8 ± 0,05 bar)

4.3 Pressure gauge, fitted to the test tank or vessel to enable the test pressure to be observed.



* The apparatus must permit a clear view through the test specimen

FIGURE 1 — **Diagram of a suitable apparatus**

5 TEST SPECIMEN

The test specimen shall consist of the fitting to be tested assembled with one or more pieces of unplasticized polyvinyl chloride pipe, of the size and quality for which the fitting is designed.

The spigot and socket shall conform to the extreme limits of their relevant tolerances, i.e. pipe of minimum diameter, socket at maximum diameter in the zone of the groove housing of the sealing ring, and a sealing ring of minimum cross-section.

The length(s) of the section(s) of pipe to be connected shall be such that the free length of pipe between the socket face and the test equipment (or terminal seal) shall be equal to the outside diameter of the pipe, with a minimum length of 250 mm (see figure 2).

The assembly of the joints shall be carried out in accordance with the individual national practices or standards.

6 PROCEDURE

Secure the test specimen in the enclosed tank or pressure vessel (4.1).

Fill the tank with water at a temperature of 20 ± 2 °C.

Wait 20 min to ensure equalization of temperature.

Remove any condensation from the inside surface of the test specimen.

Wait 10 min and ensure that the inside surface of the test specimen is completely dry.

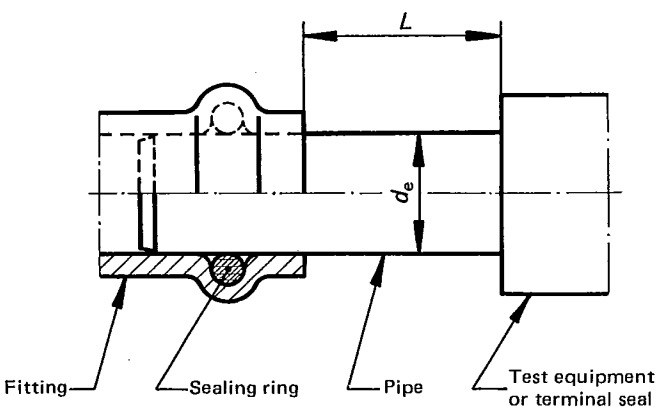
Apply the test pressure of 0,01 MPa (0,1 bar) for 1 h, followed by an increase in test pressure to 0,08 MPa (0,8 bar) for a further period of 1 h.

Inspect the inside surface of the test specimen for leakage at intervals during the test.

7 TEST REPORT

The test report shall make reference to this International Standard and shall indicate whether or not leakage occurred and if so at which pressure.

The fitting shall be declared satisfactory if no leakage occurs at either of the two test pressures.



L = free length = d_e or a minimum of 250 mm

FIGURE 2 — **Illustration of method of connection of pipe**